

**REMARKS/ARGUMENTS**

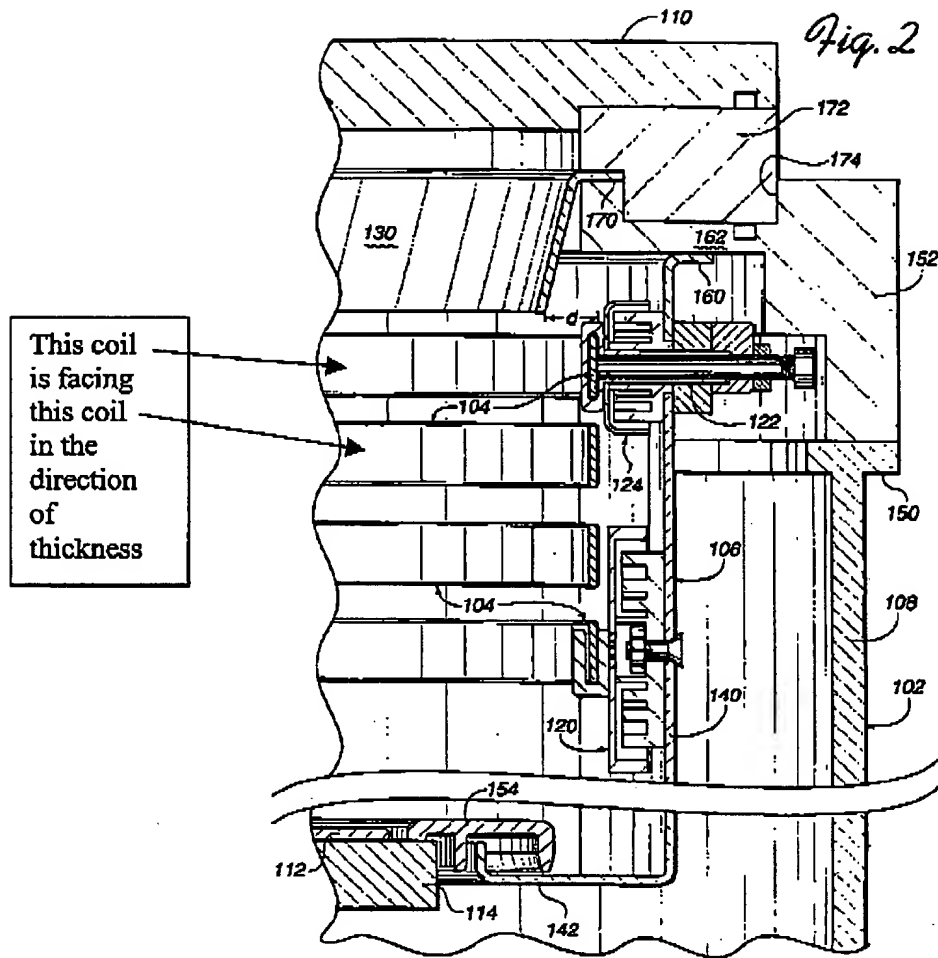
The Office Action rejected claims 1-16, 21-29, 31-34 and 37 under 35 U.S.C. 103(a) as being unpatentable over Qian et al. (U.S. 6,447,636) in view of Subramani et al. (U.S. 6,254,746), and allowed claims 30, 38, and claims 35 and 36 if rewritten in independent form.

Regarding section 35 U.S.C 103(a) rejection, Applicants submit that a basic component of the present invention is a ribbon electrode comprising a plurality of ribbon coil, with each ribbon coil having the width greater than the thickness and *the width being in a dimension facing an adjacent coil* (emphasis added). Applicants submit that both Qian et al. and Subramani et al. fail to teach this component (*the width being in a dimension facing an adjacent coil*), that the electrode coils are stacked against the greater side (width) of the ribbon coils, which provides benefits not realized nor expected (high power without high coupling capacitance).

Qian et al. fails to teach that each ribbon coil has the width being in a dimension facing an adjacent coil, as stated by the Examiner. Applicants further submit that Subramani et al. also fails to teach that the ribbon coils have the width being in a dimension facing an adjacent coil. Instead, Subramani et al. discloses a ribbon coil electrode comprising each ribbon coil having the *thickness (not width)* being in a dimension facing an adjacent coil, forming a flattened cross-sectional shape (Figs. 1-3).

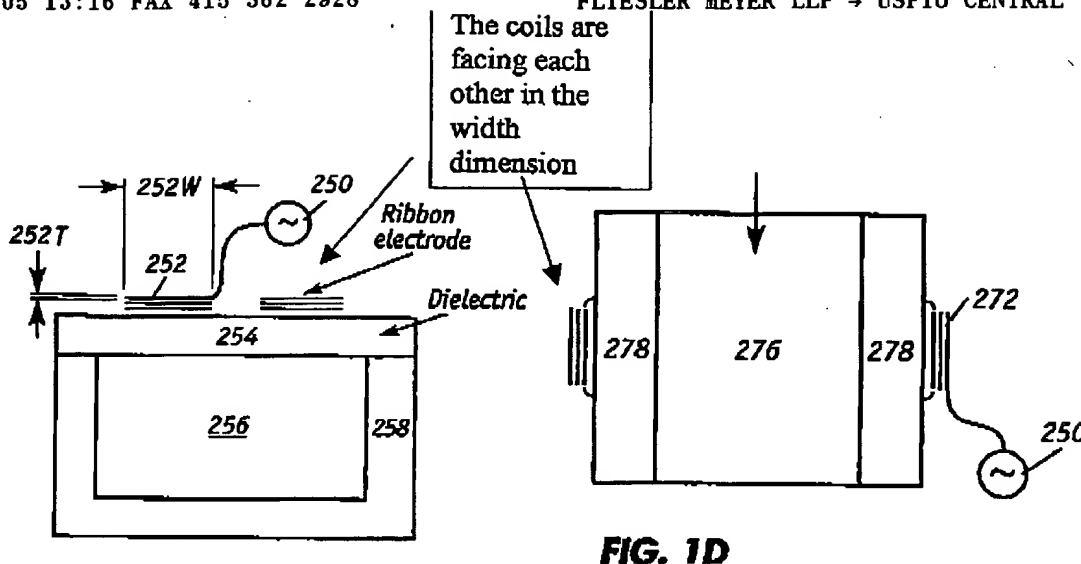
Having a flattened cross-sectional shape, the ribbon-shape coils of Subramani et al. form only one layer against the chamber wall surface. Thus, the coils of Subramani et al. have the thickness (the smaller dimension of the coil cross-section) being in a dimension facing an adjacent coil.

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### Subramani et al.'s helical electrode configuration

In contrast, the coils of the present invention have a *stacked* cross-sectional shape, meaning the coils form multiple layers against the chamber wall surface. Thus, the coils of the present invention have the width (the greater dimension of the coil cross-section) being in a dimension facing an adjacent coil.



### The present invention helical electrode configurations

With different stacking configurations (stacking along the coil thickness v. stacking along the coil width), the coils provide different plasma characteristics. The spreading of the coils of Subramani et al. provides a greater capacitive coupling from the coil antenna to the plasma in the chamber, due primarily to the increased surface area of each winding facing the plasma. In contrast, the width stacking coils of the present invention preserves the capacitive coupling by keeping the surface area constant. Thus, by increase the number of coils to increase the power, Subramani et al.'s design would increase significantly the coupling capacitance while the coupling capacitance of the present invention's design remains essentially the same.

Accordingly, the combined cited arts fail to teach or suggest an element of the independent claims 1, 24, 31 and 37 of the present invention, namely, the stacking of the coils along the greater-dimension width, which provides the unexpected benefit of increasing power without increasing coupling capacitance. Claims 2-16, 21-23, 25-29, and 33-34 all depend, directly or indirectly, from these independent claims, and, thus, are also patentable over the cited art for at least the reason discussed above.

Applicants respectfully request that a timely Notice of Allowance be issued in this case.

The Commissioner is authorized to charge any underpayment or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this response, including any fee for extension of time, which may be required.

Respectfully submitted,

Date: \_\_\_\_\_

9/29/05

By: \_\_\_\_\_

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